

Attachment B – Summary of Operational Changes

B.1 Operational Capabilities of SIMSS Release 1.0

General

- Implement a client-server architecture
- Run the client user interface on either a separate or same system as the server
- Provide a user-friendly, graphical user interface
- Allow the user to stop, start, pause, and reconfigure the system
- Allow the user to monitor the status of the system and to view the data being manipulated by the system
- Allow the user to save and restore the current system configuration
- Provide the capability to receive and transmit data using standard Internet protocols (IP).
- Provide the capability to receive and transmit data using standard serial interface standards.
- Provide the capability to log data
- Provide the capability to send data from a file
- Provide the capability to generate a CCSDS AOS telemetry stream
- Allow the user to configure the system to perform whatever capabilities are currently desired out of the above capabilities

IP input and output

- Receive data in standard IP protocols, specifically TCP/IP (client or server), UDP/IP unicast, and UDP/IP multicast
- Transmit data in standard IP protocols, specifically TCP/IP (client or server), UDP/IP unicast, and UDP/IP multicast
- Allow the user to define the IP address, port number, and data size (or a variable data size) for receiving or sending
- Allow the user to see the data being received or transmitted
- Display the status of input and output, including enabled/disabled status and packet counts

Serial input and output

- Receive data in standard serial configuration
- Transmit data in standard serial configuration
- Allow the user to set the serial configuration parameters
- Allow the user to see the data being received or transmitted
- Display the status of input and output, including enabled/disabled status and packet counts

Logging

- Save incoming data to a file
- Allow the user to enable or disable logging and enter the name and maximum size of the log file
- Allow the user to see the data being logged

- Display the status of logging, including enabled/disabled status and the number of bytes written to the file

File transmission

- Send data from a file
- Allow the user to enable or disable file transmission and enter the name of the file to transmit
- Allow the user to set the file transmission mode and configuration, including block size, number of blocks, automatic or manual transmission, and interval between block transmits
- Allow the user to see the data being transmitted

Generic telemetry

- Generate telemetry according to CCSDS AOS standards for packets and VCDUs
- Generate telemetry based on the contents of a formatted text file (as defined in the user's guide). The text file includes packet definitions (including size, data rate, and virtual channel) and virtual channel to physical channel mapping
- Generate up to three physical channels of telemetry
- Update counters in packet headers
- Pack packets into VCDUs with packets crossing VCDU boundaries as needed
- Allow the user to display and change the contents of telemetry packets

Test module

- Provide the capability to monitor data output from other modules from within the same SIMSS configuration